

Research Article

World Journal of Tourism Management

Beyond Proximity: Geographic Distance, Governance Regimes, and Community Empowerment in Ghana's Ecotourism Landscape

George Tandoh^{1*} and Nicholas Imbeah²

¹Department of Social Science, Fijai Senior High School, Fijai, Takoradi, Ghana

²Department of Tourism Management, Takoradi Technical University, P. O. Box 256, Takoradi, Ghana

***Corresponding Author**

George Tandoh, 1Department of Social Science, Fijai Senior High School, Fijai, Takoradi, Ghana.

Submitted: 2026, Jul 03 **Accepted:** 2026, Aug 12; **Published:** 2026, Aug 21

Citation: Tandoh, G., Imbeah, N. (2026). Beyond Proximity: Geographic Distance, Governance Regimes, and Community Empowerment in Ghana's Ecotourism Landscape. *World J Tourism Mgm*, 2(2), 01-14.

Abstract

Community-based ecotourism (CBET) is widely promoted as a strategy for achieving biodiversity conservation and rural development, yet evidence on how spatial accessibility influences community empowerment remains limited. Existing research has largely examined empowerment as a social or institutional process, with insufficient attention to its spatial dimensions and the role of governance in shaping geographically uneven outcomes. This study investigates the relationships among spatial accessibility, governance, and multi-dimensional community empowerment in two contrasting protected areas in Ghana: The State-managed Ankasa Conservation Area and the locally managed Amansuri Community Nature Reserve. A convergent mixed-methods design was employed, integrating household surveys, key informant interviews, focus group discussions, Geographic Information Systems (GIS), and spatial statistical analyses. Community empowerment was assessed across economic, psychological, social, and political dimensions, while spatial accessibility was evaluated using distance-based analysis, regression modelling, and residual mapping. The findings indicate that communities located closer to ecotourism attractions generally reported higher levels of empowerment, although the observed distance–empowerment relationships were not statistically significant. Spatial patterns and qualitative evidence nevertheless suggest that governance quality influences how geographic accessibility is translated into empowerment outcomes. Communities characterised by stronger participation, institutional engagement, and benefit-sharing mechanisms consistently demonstrated higher empowerment than communities with similar geographic advantages but weaker governance arrangements. The study further reveals that psychological empowerment remained relatively strong across communities, whereas economic and political empowerment were comparatively limited. The study contributes to community-based ecotourism scholarship by demonstrating that empowerment is shaped by the interaction between spatial accessibility and governance rather than geographic proximity alone. Integrating GIS with empowerment analysis provides a novel spatial perspective that can support more equitable tourism planning, targeted community interventions, and sustainable protected-area management.

1. Introduction

Community-based ecotourism (CBET) has been extensively advocated as a strategic mechanism for reconciling biodiversity conservation imperatives with rural livelihood enhancement, particularly within resource-dependent regions of the Global South [1-4]. By foregrounding local participation, equitable benefit distribution, and community responsibility, CBET is theoretically positioned to engender multi-dimensional empowerment among host communities while simultaneously advancing sustainable tourism trajectories. Notwithstanding its normative appeal, accumulating empirical evidence increasingly reveals that CBET

initiatives frequently fall short of their empowerment objectives, generating uneven benefit distributions and persistent local discontent [5-10].

Within the protected-area tourism landscapes in Ghana, this implementation-outcome disjuncture manifests with salience. At the Ankasa Conservation Area and the Amansuri Community Nature Reserve, CBET initiatives are yet to be translated into meaningful community empowerment [10-12]. Prevailing explanations for these shortcomings have predominantly emphasized governance failures, elite capture, or institutional capacity deficits, while

paying marginal attention to spatial inequalities embedded within ecotourism systems. Geographic distance and peripherality are increasingly recognized as critical yet understudied determinants of development outcomes in conservation contexts. Drawing upon traditions in human geography, marginality and peripherality constitute not merely physical remoteness, but relational conditions shaped by differentiated access to resources, power, infrastructure, and decision-making processes. In ecotourism contexts, proximity to tourism infrastructure frequently determines participation patterns, benefit flows, and exclusion dynamics, thereby reinforcing spatially structured empowerment disparities [13-18].

Emerging empirical evidence demonstrates that spatial distance fundamentally shapes community perceptions, attitudes, and developmental outcomes in conservation and tourism contexts [19-22]. However, two critical lacunae persist in CBET scholarship [23-28]. Theoretically, empowerment frameworks are rarely integrated with spatial theories of marginality, peripherality, and distance decay, limiting conceptual synthesis. Methodologically, the predominant reliance on non-spatial approaches constrains the capacity to detect spatial heterogeneity and distance-based effects.

Most critically, few of these studies have examined community empowerment mapping or analyzed empowerment outcomes in relation to distance from ecotourism ventures, representing a fundamental empirical and methodological gap that this study uniquely addresses. Responding to these lacunae, this study examines how geographic distance influences multi-dimensional community empowerment under contrasting governance regimes, utilizing the Ankasa Conservation Area (ACA) and the Amansuri Community Nature Reserve (ACNS) as comparative cases. Grounded in Scheyvens' (1999) Empowerment Framework and informed by spatial theories of marginality and peripherality, the study adopts a spatially explicit mixed-methods approach, integrating Geographic Information Systems (GIS) technique to map empowerment-distance relationships [15,16].

The study addresses the following research questions:

- What is the geographic distance of communities from ecotourism ventures?
- How does geographic distance from ecotourism facilities influence economic, psychological, social, and political empowerment dimensions?
- How residents proximate and distant from ecotourism sites perceive empowerment under different governance regimes

By addressing these questions, the study contributes theoretically by integrating empowerment and spatial marginality frameworks, methodologically by applying advanced spatial analytics to CBET research through community empowerment mapping, and empirically by providing evidence from an understudied West African context. The explicit mapping of empowerment-distance relationships represents a distinctive contribution that extends beyond existing literature on spatial distance and tourism attitudes toward empirically quantifying how proximity shapes multi-dimensional empowerment outcomes in CBET contexts.

2. Literature Review

2.1. Community Empowerment in CBET

Community empowerment in CBET is extensively conceptualized as a multi-dimensional process encompassing economic diversification, psychological self-efficacy, social cohesion, and political participation [1,4]. While numerous investigations document positive livelihood and cultural outcomes, evidence of comprehensive empowerment remains heterogeneous and context-dependent [29-31]. Conceptual fragmentation persists in the literature, with empowerment frequently examined independently of governance structures, spatial accessibility, or power relations, thereby limiting explanatory depth and theoretical integration [32].

2.2. Marginality, Peripherality, and Spatial Inequality

The concepts of marginality and peripherality originate from human geography and social science scholarship examining uneven development trajectories and spatial exclusion mechanisms. Marginality refers to structural disadvantage arising from constrained access to resources and decision-making power, while peripherality emphasizes spatial distance from economic and political centres [15-18,33-36]. These conditions constitute relational and socially produced phenomena rather than purely locational attributes [13,15]. Empirical investigations demonstrate that peripheral communities experience constrained development opportunities attributable to distance-related transaction costs, attenuated institutional engagement, and diminished visibility within governance systems [20,22,37]. In tourism contexts, such spatial inequalities translate into uneven benefit distributions, reinforcing exclusion within ostensibly participatory models such as CBET [38,39].

2.3. Distance Decay and Spatial Laws of Geography

Tobler's (1970) First Law of Geography formalizes the principle of distance decay, asserting that interaction intensity attenuates with increasing spatial separation (Miller, 2004). In ecotourism contexts, this manifests as declining participation rates, attenuated institutional engagement, and reduced benefit flows for spatially distant communities [20,21,40]. Foundational work by established spatial proximity as a critical determinant of tourism impact perceptions, demonstrating that residents' proximity to tourism developments fundamentally shapes their attitudes and perceived benefits [41]. Building upon this foundation, Jurowski and Gursoy (2004) demonstrated that distance effects operate differentially depending on residents' environmental values and resource usage patterns, with proximity simultaneously enhancing support through conservation, appreciation and generating opposition through the use of conflicts. This complexity underscores that spatial relationships in tourism are mediated by contextual factors beyond simple distance metrics.

Empirical evidence across diverse conservation contexts substantiates systematic distance-decay effects on community outcomes and perceptions. In Tanzania, Mbise et al. (2021) empirically established that appreciation of conservation benefits decreased systematically with increasing distance from park boundaries, with communities proximate to Tarangire and Saadani

in National Parks reporting significantly elevated satisfaction with conservation benefits compared to spatially distant populations. Similarly, Phyo et al. (2023) documented in Myanmar that households located closer to protected areas expressed markedly more positive conservation attitudes, primarily attributable to greater resource dependence and enhanced benefit visibility, whereas distant communities perceived diminished gains and exhibited attenuated conservation support.

Heritage proximity research extends these findings to cultural tourism contexts. Lwoga (2019) demonstrated that heritage spatial proximity moderates the relationship between perceptual proximity and residents' tourism attitudes, functioning as a critical mediating variable in attitude formation. Dar and Ahmed (2023) further established that heritage proximity operates as an interpretive lens through which residents evaluate tourism impacts, with stronger proximity correlating with more favorable perceptions and elevated support for cultural heritage tourism. Economic and socio-cultural benefits emerged as particularly influential in shaping support mechanisms, underscoring the necessity of integrating local heritage identity into tourism planning frameworks. Wei et al. (2021) substantiated that residents exhibiting stronger heritage proximity, encompassing both physical closeness and emotional attachment to heritage sites were significantly more likely to perceive tourism as generating economic gains (employment opportunities, income enhancement, infrastructure development) and socio-cultural benefits (community pride, cultural preservation, identity reinforcement).

However, the Second Law of Geography emphasizes spatial heterogeneity, cautioning against assuming uniform distance effects across diverse landscapes [42,43]. The Third Law of Geography underscores spatial similarity principles, enabling comparative analysis across governance and geographic contexts [43]. These theoretical frameworks collectively suggest that while distance-decay effects are widespread, their magnitude and manifestation vary systematically across contexts. Despite substantial advances in understanding how spatial distance and heritage proximity shape community attitudes toward tourism and conservation, a fundamental empirical and methodological lacuna persists, the relationship between spatial distance and multi-dimensional empowerment (economic, psychological, social, political) remains empirically unexplored. This represents a substantial knowledge gap that constrains both theoretical understanding and practical intervention strategies.

2.4. Governance as a Moderator of Spatial Empowerment

Governance regimes play a decisive mediating role in spatial inequality reproduction or mitigation. Centralized, state-controlled conservation models frequently prioritize ecological protection objectives at the expense of local empowerment imperatives, thereby exacerbating marginality and peripherality [6,44,45]. Conversely, locally managed systems may enhance participatory opportunities and institutional trust but frequently confront capacity and resource constraints that limit their effectiveness [46]. Empirical evidence regarding whether decentralized governance

can effectively attenuate distance-decay effects remains inconclusive, particularly within African conservation contexts. This study systematically addresses these lacunae through an integrated spatial-governance empowerment framework that uniquely maps empowerment outcomes in relation to distance from ecotourism facilities.

3. Theoretical Background and Conceptual Framework

3.1. Theoretical Background

This study synthesizes two complementary theoretical traditions to examine spatial dimensions of community empowerment in CBET contexts.

First, Scheyvens' (1999) Empowerment Framework provides the conceptual foundation for operationalizing multi-dimensional empowerment outcomes. Scheyvens delineates four interrelated empowerment dimensions namely:

- Economic empowerment (enhanced income, employment, and livelihood diversification).
- Psychological empowerment (increased self-esteem, pride, and confidence in community capabilities).
- Social empowerment (strengthened social cohesion, community institutions, and collective action capacity).
- Political empowerment (enhanced participation in decision-making processes, voice, and governance influence).

This multi-dimensional conceptualization recognizes that empowerment constitutes a holistic process transcending mere economic benefit distribution to encompass psychological well-being, social capital formation, and political agency.

Secondly, spatial theories of marginality and peripherality provide the analytical framework for understanding how geographic distance produces and reproduces empowerment disparities [15,16]. Máliková et al. (2016) theorize marginality and peripherality as relational conditions characterized by structural disadvantage arising from constrained access to economic opportunities, institutional resources, and decision-making power. Crucially, these conditions are not merely locational attributes but socially produced, through historical processes of uneven development, infrastructure investment patterns, and governance structures that systematically privilege certain communities while marginalizing others.

extends this theorization through the concept of peripheralization, the dynamic process through which spatial peripheries are actively produced and reproduced through socio-economic and political mechanisms [15]. Peripheralization operates through multiple interconnected processes namely:

- Economic peripheralization (reduced investment, limited employment opportunities, capital outflow).
- Infrastructural peripheralization (inadequate transportation, communication, and service provision).
- Political peripheralization (diminished representation and influence in decision-making).
- Discursive peripheralization (stigmatization and negative external perceptions).

In CBET contexts, peripheralization manifests as systematically uneven benefit distributions, with communities proximate to ecotourism facilities capturing disproportionate shares of employment, income, infrastructure development, and governance influence. Meanwhile, spatially distant communities experience structural exclusion despite ostensibly participatory CBET frameworks.

3.2. Conceptual Framework

The conceptual framework synthesizes these theoretical foundations into a testable model examining how geographic distance from ecotourism facilities influence multi-dimensional community empowerment, with management regime functioning as a categorical moderator.

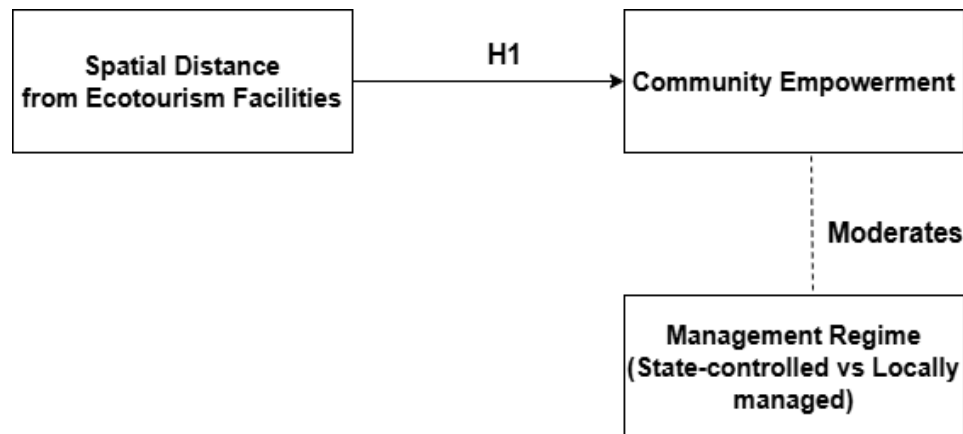


Figure 1: Conceptual Framework Showing How Distance from Ecotourism Ventures Influence Community Empowerment

3.3. Core Relationships:

3.3.1. Geographic Distance → Community Empowerment (Economic, Psychological, Social, Political)

Drawing upon distance-decay principles (Tobler, 1970) and peripheralization theory, we hypothesize negative relationships between geographic distance and all empowerment dimensions [15]. As spatial distance from ecotourism facilities increases, economic empowerment diminishes due to reduced employment access, income opportunities, and market linkages. Psychological empowerment attenuates as spatial peripherality engenders feelings of exclusion and marginalization. Social empowerment weakens as distance constrains participation in tourism-related collective action and institutional engagement. Political empowerment declines as spatial distance reduces representation and voice in tourism governance processes.

3.3.2. Management Regime (State-Controlled vs. Locally Managed) → Moderates Distance-Empowerment Relationship

Governance regime is theorized to moderate the strength and form of distance-decay effects. State-controlled regimes may produce steeper empowerment gradients due to centralized decision-making, prioritization of ecological objectives over local empowerment, and limited attention to spatial equity considerations [6,44]. Conversely, locally managed regimes may flatten empowerment gradients through enhanced local participation, deliberate efforts to extend benefits to peripheral communities, and governance structures more responsive to spatial equity concerns [46]. However, capacity and resource constraints within locally managed systems may limit their effectiveness in overcoming distance-based barriers [12].

4. Materials and Methods

4.1. Study Areas

This study adopts a comparative design focusing on two contrasting community-based ecotourism contexts within Ghana's Jomoro Municipality in the Western Region: The Ankasa Conservation Area (ACA), a state-controlled protected area, and the Amansuri Community Nature Reserve (ACNR), a locally managed community reserve.

4.2. Amansuri Community Nature Reserve (ACNR).

The Amansuri Community Nature Reserve (ACNR) is an inland swamp forest located between latitudes 04°55'–05°15' N and longitudes 02°15'–02°45' W. Covering approximately 830 km², it lies about 360 km West of Accra, 35 km from Half-Assini, and roughly 90 km West of Takoradi. ACNR falls within Ghana's wet evergreen ecological zone, characterized by peat, swamp, and mangrove forests and an equatorial monsoon climate with a double-maxima rainfall pattern (May–June and October–November). Annual rainfall ranges between 1,700 and 2,000 mm, with an average relative humidity of approximately 87 [47,48]. The reserve was established through collaboration between the Ghana Wildlife Society, traditional authorities, and local communities of the Western Nzema Traditional Area and is protected under both the Amansuri Community Nature Reserve framework and a Wetland Ecosystem Byelaw enacted by the Jomoro District Assembly [49]. Governance authority resides within the Western Nzema Traditional Council, headquartered at Beyin, the traditional and cultural capital of the area.

ACNR's flagship tourism asset is the Nzulezu Stilt Village, a unique settlement constructed on stilts over Lake Tadane and is

accessible via a boat journey of approximately 25 minutes from Beyin [50]. Nzulezu preserves distinctive cultural traditions, including sacred days and lake-based religious rites, and was proposed for UNESCO's World Heritage status in 2000 [47]. The reserve supports notable biodiversity, including at least 27

mammal species such as black-and-white colobus and mona monkeys, numerous migratory bird species, and marine turtles. Local livelihoods are predominantly fishing, small-scale farming, trading, boat operation, coconut oil processing, and local gin (akpeteshie) production.

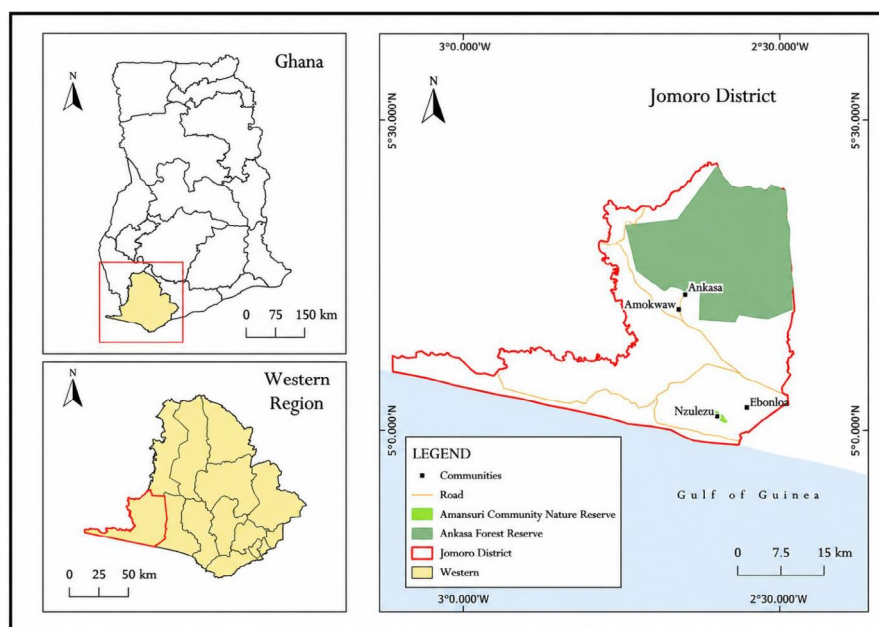


Figure 2: Study Area Map

4.3. Ankasa Conservation Area (ACA).

The Ankasa Conservation Area (ACA) is geographically positioned at 5°17' North latitude and 2°39' West longitude, within the Jomoro Municipal of Southwestern Ghana, directly bordering the Republic of Côte d'Ivoire (Ashiagbor et al., 2024). It encompasses two formerly distinct reserves, the Ankasa Resource Reserve and the Nini Suhien National Park [51]. Together, they form the only protected enclave within the wet evergreen high forest zone in Ghana, a globally significant ecosystem that supports remarkable biodiversity, including forest elephants, chimpanzees, bongos, and over 600 butterfly species [51].

Initially, it was gazetted as the Ankasa River Forest Reserve in 1934 to safeguard hydrological systems for agriculture, ACA later underwent phases of timber exploitation. The institutional tide turned with the launch of the Protected Areas Development Programme (PADP) in 1997, culminating in the 2000 management plan that re-envisioned ACA as a hub for biodiversity preservation, community-based natural resource management, and ecotourism. This shift also introduced Community Resource Management Areas (CREMAs), which were designed to decentralize power and integrate local actors into conservation governance [51,52]. Most residents are smallholder farmers cultivating both food crops (e.g., plantain, cassava, vegetables) and cash crops (e.g. cocoa, coconut, oil palm) [11]. While the conservation area boasts of ecotourism infrastructure such as visitor centres, nature trails, and iconic attractions like the Bamboo Cathedral and the “Big Tree,”

the economic spillovers to residents remain minimal.

4.4. Research Design

The study employs a comparative cross-sectional design to investigate spatial empowerment dynamics within community-based ecotourism (CBET) contexts. The Jomoro Municipality provides an experimental setting, allowing systematic comparison of two distinct governance regimes:

- The state-controlled Ankasa Conservation Area
- The locally managed Amansuri Community Nature Reserve.

This spatially explicit approach advances CBET scholarship by moving beyond conventional non-spatial sociological inquiry, enabling rigorous analysis of empowerment gradients [20,21,53,54].

The survey instrument underwent expert review to ensure conceptual equivalence, followed by pilot testing with a small sample to assess comprehension. Feedback from the pilot informed refinements, strengthening the reliability and validity of the final instrument.

4.5. Data Sampling and Collection

To capture spatial heterogeneity, a stratified spatial sampling strategy was adopted. Residents' proximity to ecotourism sites was classified using methodology, which defines individuals within 1.5 km of a site as “proximate” and those beyond this threshold as

“distant.” Four communities were strategically selected: Nzulezu (Amansuri) and Ankasa (Ankasa Conservation Area) as proximate communities, and Ebonloa (Amansuri) and Amokwaw (Ankasa Conservation Area) as distant communities [25,41]. Quantitative data were gathered through structured questionnaires based on Scheyvens’ empowerment dimensions. To ensure spatial accuracy, Global Positioning System (GPS) coordinates were recorded for each community centroid, minimizing self-reporting errors in distance measurement [44].

4.6. Sample Characteristics

The study adopted mixed-methods, convergent parallel design, integrating quantitative and qualitative data to examine empowerment outcomes [55]. A total of 260 respondents participated in the survey, distributed evenly across the four communities, yielding a balanced 2×2 factorial design: management regime (Amansuri locally managed, N=130; Ankasa state-controlled, N=130) crossed with distance category (proximate ≤ 1.5 km, N=130; distant >1.5 km, N=130). Complementing this, 52 semi-structured interviews (13 per community) were conducted purposively to capture diverse demographic and occupational perspectives.

4.7. Data Analysis

Spatial analysis employed multiple complementary techniques. Buffer analysis delineated distance zones around ecotourism facilities. Inverse Distance Weighting (IDW) interpolation generated continuous empowerment surfaces, visualizing spatial empowerment gradients across the study landscape. Spatial auto correlation was assessed using Moran’s I statistic to detect clustering patterns in empowerment outcomes. Geographically Weighted Regression (GWR) examined spatial non-stationarity, enabling detection of locally varying relationships between distance and empowerment [53,56-59]. The analytical framework tests the central hypothesis that locally managed governance

flattens distance-decay effects relative to centralized management regimes. GWR coefficients enable localized comparison of empowerment gradients between governance contexts, empirically evaluating the efficacy of decentralized conservation approaches in mitigating spatial exclusion [22,53].

4.8. Ethical Considerations

Ethical approval was obtained from relevant institutional review boards. Informed consent, confidentiality protection, and cultural sensitivity were rigorously maintained throughout the research process, adhering to established ethical standards for social research in community contexts. Microsoft Copilot (version April 2026), an AI-assisted content generation tool, was used to refine phrasing and draft selected text segments. Its use was limited to improving clarity and efficiency in manuscript preparation; all substantive content and final revisions were completed by the authors.

5. Results

5.1. The Geographic Distance of Communities from Ecotourism Ventures

The extent of community residents’ empowerment around the Nature Reserves was determined by their distance from the core zone of the ecotourism attractions. That is the level of community empowerment decreases as the distance of the communities increases from the tourism centre.

Map A is the distance and community classification map: It shows how far each selected community is from the two ecotourism sites, ACA and ACNR. The closest distance band is 0 to 1.5 km. So, any community falling within that closest band is treated as proximate, meaning it is close enough to possibly benefit more directly from the tourism site. From the map, Nzulezu is proximate to ACNR, and Ankasa is proximate to ACA. Ebonloa and Amokwaw fall outside the closest band, so they are treated as distant communities.

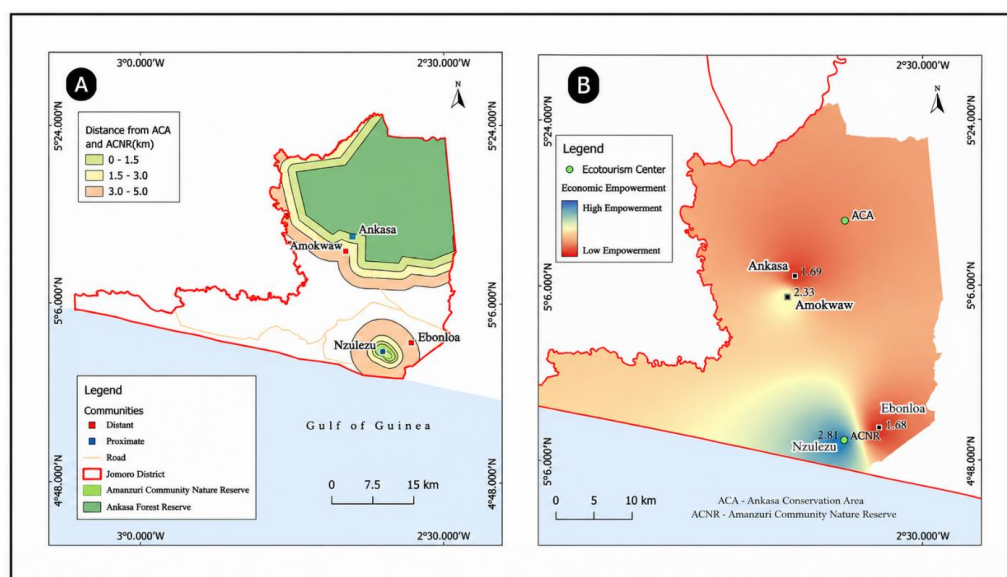


Figure 3: A Map showing the Distance of Communities from Ecotourism Ventures and Economic Empowerment

5.2. How the Distance from Ecotourism Ventures Influence Community Empowerment

The maps show that, residents of Nzulezu were generally empowered due to their proximity to the tourism venture while the residents of Ebonloa were generally not empowered. On the other hand, community residents of Ankasa though closer to the tourism venture were not empowered, meanwhile the residents of Amokwaw were relatively empowered. That is, at ACA the proximate community (Ankasa) was generally not empowered while the distant community (Amokwaw) was relatively empowered.

Map B is the economic empowerment map: None of the communities under review were economically empowered. Economic empowerment here is about the possible economic benefits people are getting from the tourism activity. Nzulezu

records the highest economic empowerment score of 2.81, and it is also very close to ACNR, but this means that Nzulezu may not be benefiting economically from its closeness to the tourism site. Amokwaw records 2.33 even though it is classified as distant. Ankasa records 1.69, and Ebonloa records 1.68.

Map C shows political empowerment: Political empowerment is about whether people feel they have a voice, influence, or some level of participation in decisions connected to the tourism site. Nzulezu again records the highest score, 3.34. Ebonloa records 2.20. Amokwaw records 1.89, and Ankasa records 1.79. What this tells us is that the ACNR site appears to be doing better politically than the ACA site. Nzulezu especially seems to have a stronger political empowerment outcome. Ankasa is close to ACA, but its score is still low. So again, it can be said that, closeness alone does not guarantee empowerment.

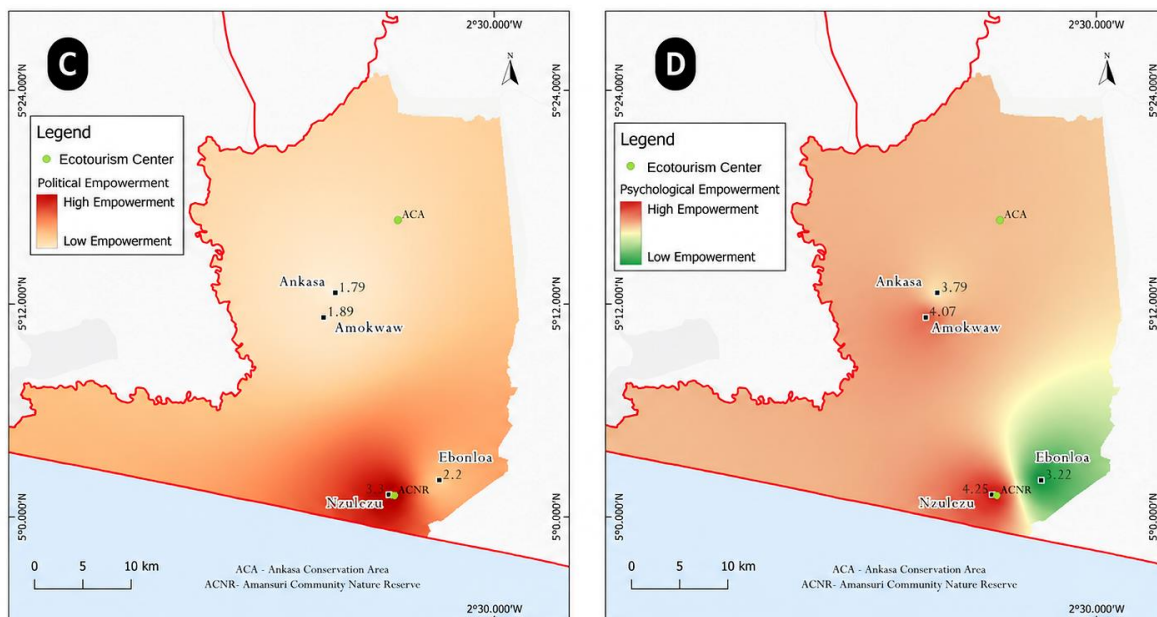


Figure 4: Map showing Political and Psychological Empowerments

Map D is the psychological empowerment map: This looks more at how people feel in relation to tourism, such as confidence, pride, recognition, and whether they feel the tourism activity gives value to their community. Nzulezu has the highest score again, 4.25. Amokwaw follows with 4.07. Ankasa records 3.79, and Ebonloa records 3.22. This dimension is generally higher than the economic and political scores. It means people may feel emotionally or socially connected to tourism even when the direct economic benefits are not very strong. Nzulezu is still the strongest, but Amokwaw also performs very well despite being distant.

Map E shows social empowerment: Social empowerment looks at how tourism may be linked to community unity, participation,

social support, and shared community benefits. Nzulezu records the highest score of 4.24. Ebonloa records 3.72, Amokwaw records 3.69, and Ankasa records 3.56. The difference between the communities is not too wide as compared to the economic and political maps. But Nzulezu still comes out more empowered than the other communities under review. This means that socially, the communities are not extremely far apart, but Nzulezu still appears to have the strongest social benefit from tourism. Ankasa is proximate but has the lowest social score, so this again shows that being close to the site does not automatically mean the community is more empowered.

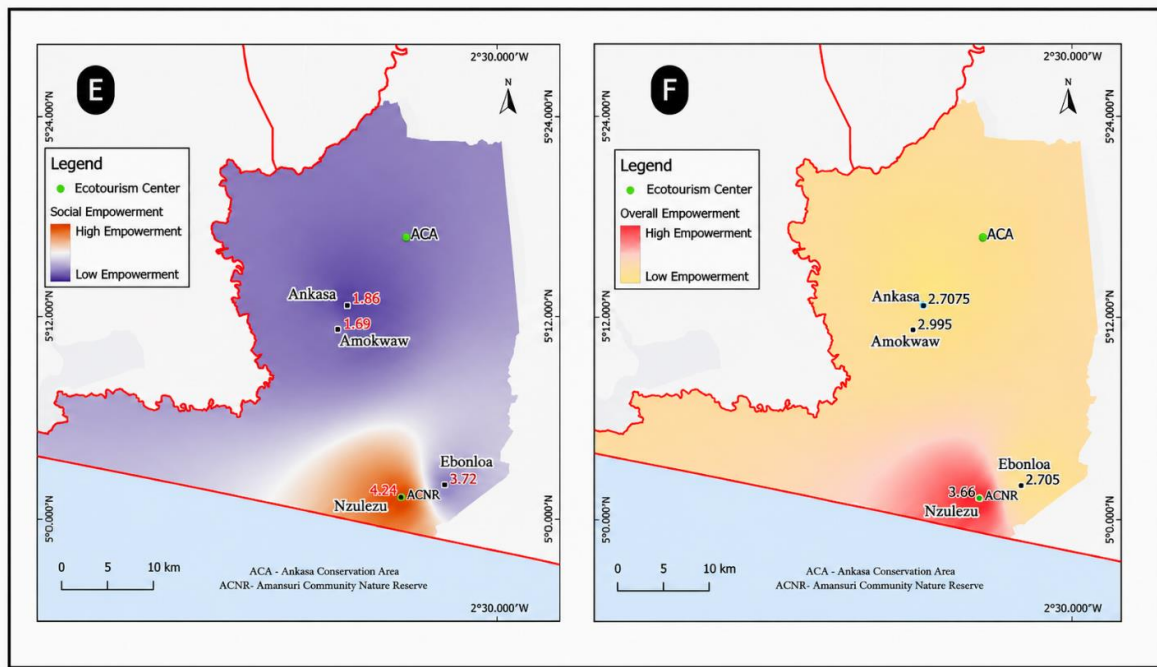


Figure 5: Map showing Social and Overall Empowerments

Map F shows the overall empowerment map. This combines the four dimensions into one general score. Nzulezu records the highest overall score of 3.66. Amokwaw follows with 3.0. Ankasa records 2.71, while Ebonloa records 2.705. So, when all the empowerment dimensions are combined, Nzulezu is clearly the overall empowered community. This supports the idea that proximity to ACNR may be giving Nzulezu some advantage over the others. But the overall map also shows that the story is not only about distance. Amokwaw is distant but still performs better overall than Ankasa and Ebonloa in terms of empowerment score. Ankasa is proximate but does not perform as strongly as expected. Therefore, the main interpretation is this: distance matters, especially in the case of Nzulezu, but distance alone cannot explain everything. In sum, the governance system, how benefits are shared, how communities participate, and how people feel connected to the tourism site may also be very important.

In simple terms, the maps are showing that Nzulezu is the strongest community across almost all the empowerment dimensions. This may be because it is close to ACNR and possibly more directly connected to tourism activities. However, Ankasa shows that a community can be close to a tourism site and still not show very strong empowerment. That is why the maps are useful. They do not just show where the communities are; but also reveals that empowerment depends on both distance and how tourism actually works in each community

5.3. Comparison of Empowerment Gradients Between Governance Contexts

All the relationships were statistically insignificant. This means that, with the current number of communities/data points, we do not have enough evidence to claim a strong statistically significant

relationship between distance from the assigned ecotourism centre and empowerment outcomes. However, the direction of the results is still useful because all the regression lines show a negative slope. This suggests that empowerment tends to decrease as distance from the ecotourism centre increases, although this pattern cannot be confirmed statistically at this stage.

The relationship between distance and economic empowerment is negative with regards to economic empowerment plot, meaning that communities farther from the ecotourism centre generally recorded lower economic empowerment scores. Nzulezu, which is closest to the ecotourism centre, recorded the highest economic empowerment score, while Ankasa and Ebonloa recorded lower scores. Amokwaw, although far from the centre, recorded a relatively higher economic empowerment score than Ankasa and Ebonloa. This may explain why the relationship is weak. The R^2 value of 0.168 means that distance explains only about 16.8% of the variation in economic empowerment. The p-value of 0.590 shows that the relationship is not statistically significant.

The political empowerment plot revealed that, the negative relationship is stronger compared with the other dimensions. The R^2 value of 0.810 suggests that distance explains about 81.0% of the variation in political empowerment. This is a strong pattern, as the communities farther from the ecotourism centre generally show lower political empowerment scores. Nzulezu recorded the highest political empowerment score, while Ankasa and Amokwaw recorded lower scores. However, the p-value of 0.100 is still above the conventional 0.05 level, so the relationship is not statistically significant. This result is important because it suggests a strong possible pattern, but more data would be needed before making a firm conclusion.

The psychological empowerment plot showed that, the regression line is almost flat. This shows that distance has little or no clear relationship with psychological empowerment. The R^2 value of 0.001 means that distance explains only about 0.1% of the variation in psychological empowerment. The p-value of 0.964 confirms that the relationship is not statistically significant. This suggests that psychological empowerment may be influenced more by other factors such as individual perception, community identity, awareness, confidence, participation experience, or personal connection to tourism activities rather than physical distance alone.

The relationship for the social empowerment plot is again negative. The R^2 value of 0.677 suggests that distance explains about 67.7% of the variation in social empowerment, which shows a fairly strong pattern. Nzulezu recorded the highest social empowerment score, while Ankasa recorded the lowest. Ebonloa and Amokwaw fall between these two. Although the slope suggests that social empowerment decreases with distance, the p-value of 0.177 means

the result is not statistically significant. This means the pattern is useful for interpretation, but it cannot be treated as conclusive evidence.

In summary, all the five plots show that empowerment generally decreases as distance from the ecotourism centre increases. The strongest patterns are seen in political empowerment, and social empowerment. Economic empowerment shows a weaker pattern, while psychological empowerment shows almost no relationship with distance. However, none of the results are statistically significant, mainly because the analysis is based on only four community observations. With the current sample size, it is very difficult for the regression model to produce statistically significant results, even when the observed trend appears meaningful. Therefore, the results can be described as suggestive rather than conclusive. They indicate that proximity to the ecotourism centre may be associated with higher empowerment, especially in political, social, empowerment dimensions.

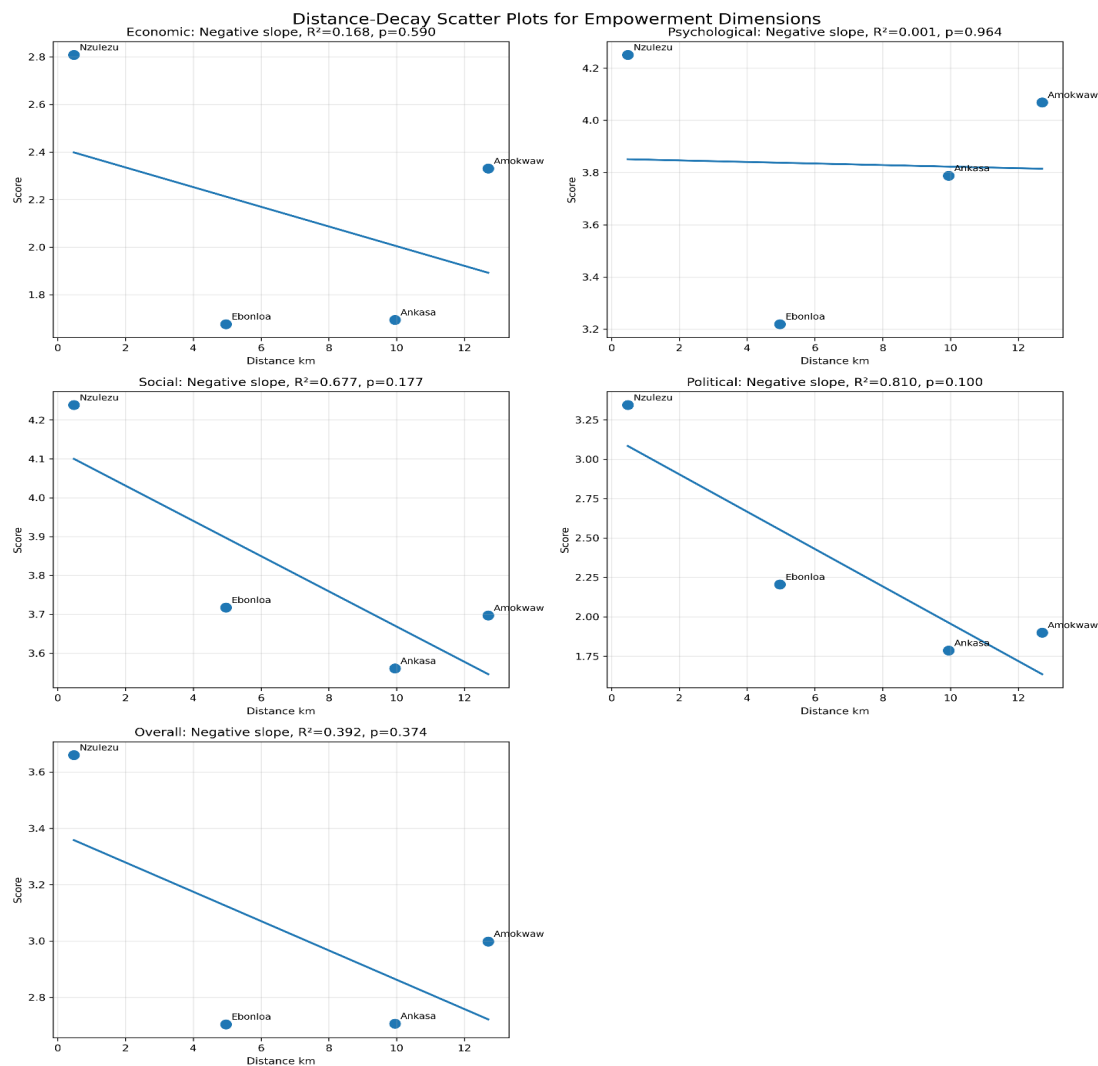


Figure 6: Distance-Decay Scatter Plots for Empowerment Dimensions

The residual map for the distance-based overall empowerment model shows where each community performed higher or lower than what the regression model predicted based only on distance from the ecotourism centre. A residual means observed overall empowerment score minus the predicted overall empowerment score. So positive residual means the community's actual empowerment score is higher than the model expected. Negative residual means the community's actual empowerment score is lower than the model expected.

In the map below, the colours help you to understand the difference. Red points show positive residuals, meaning the community performed better than predicted. Blue points show negative residuals, meaning the community performed worse than predicted.

- Nzulezu has a positive residual. This means its actual overall empowerment score is about 0.30 points higher than what the distance-based model predicted. In simple terms, Nzulezu is doing better than expected, even after considering its distance from the ecotourism centre. This may be because Nzulezu is more directly connected to tourism activities, receives more visitor attention, or benefits more from tourism-related opportunities.
- Amokwaw also has a positive residual. Although it is relatively far from the ecotourism centre, its actual empowerment score is still higher than the model predicted. This means Amokwaw is performing better than expected based on distance alone.

This suggests that other factors apart from distance may be helping the community.

- Ankasa has a negative residual. This means its actual overall empowerment score is about 0.16 points lower than what the model predicted. In other words, the model based on its distance, expected Ankasa to have a slightly higher empowerment score than it actually recorded. This suggests that proximity alone may not be enough to improve empowerment. Other local factors may be limiting empowerment outcomes in Ankasa.
- Ebonloa has the strongest negative residual. This means its actual overall empowerment score is about 0.42 points lower than predicted. In simple terms, Ebonloa is performing much lower than expected based on its distance from the ecotourism centre. This may suggest weaker access to tourism benefits, lower participation, poor linkage to tourism activities, limited awareness, or fewer economic and social opportunities connected to ecotourism.

Hence, the map shows that distance alone does not fully explain overall empowerment. Some communities are doing better than predicted, while others are doing worse than predicted. Nzulezu and Amokwaw are performing above expectation while Ankasa and Ebonloa are performing below expectation. This is important because, it means that empowerment is not controlled only by how near or far a community is from the ecotourism centre and that other factors may also matter.

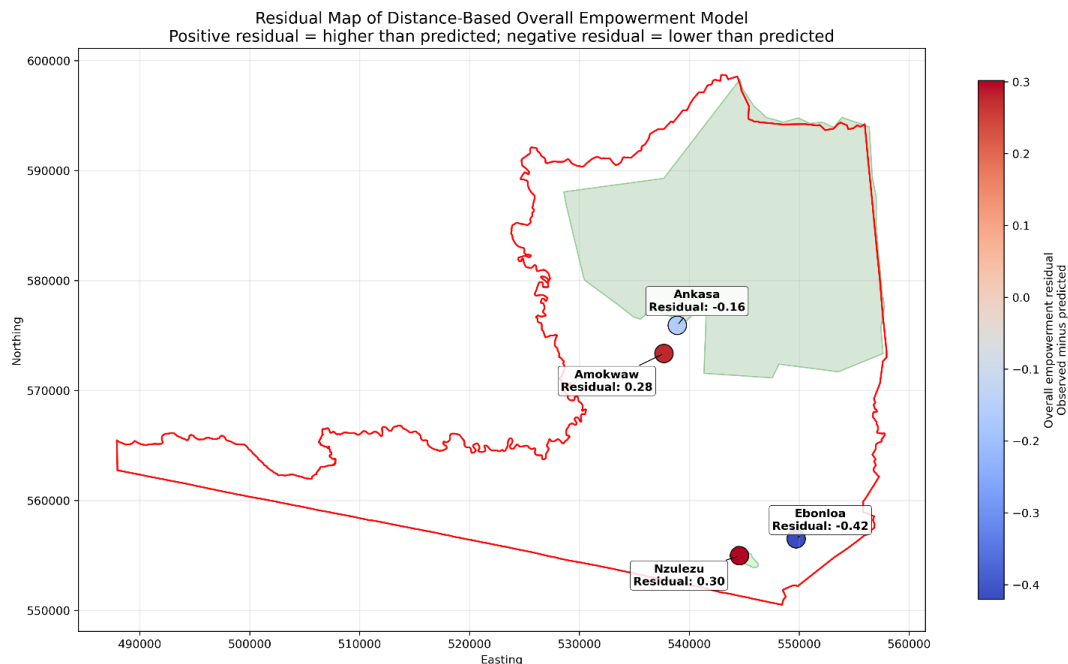


Figure 7: Residual Map for the Distance-based Overall Empowerment Model

5.4. How Residents Perceive Empowerment under Different Governance Regimes

Community residents disclosed through interviews that all revenues

generated from the tourism ventures at the Ankasa National Park go to the government through the Forestry Commission of Ghana. Meanwhile, at Amansuri Community Nature Reserve, the

traditional council received all revenues generated from tourism on behalf of the community residents. Unfortunately, at ACA no community residents benefited from tourism proceeds as there was no plan to include them in the profit sharing. Furthermore, findings from the study suggested that, there needed to be more interaction between tourism management and the communities under review as community residents at Ankasa Conservation Area were not included in the management of tourism. This was partly because the Community Resource Management Area (CREMA) which was established to encourage community participation in ecotourism management and decision-making in the Ankasa area was dormant. The potential benefits derived from ecotourism ventures are directly correlated with the degree of community participation. The lack of community residents' involvement in ecotourism means that they will not be able to participate in meetings.

On the other hand, community residents at Amansuri Community Nature Reserve said that they are only called to meetings only when they are needed for a specific purpose. They believe their interaction with tourism management was sporadic, informal, and generally low. Moreover, lack of essential infrastructure such as roads, telecommunications, and healthcare services emerged through the interviews as a major concern for community residents and a barrier to tourism success. Residents of Ankasa, and Amokwaw consistently cited poor road conditions and lack of telecommunication network as factors limiting tourist access and undermining local livelihoods. Residents and tourists travel long distances to access vital services such as healthcare and telecommunications. These longstanding infrastructural deficiencies have persisted for decades without any intervention, detracting from the area's appeal to tourists and jeopardizing the financial viability of the tourism facility.

6. Discussion

This study examined how geographic distance and governance are associated with multi-dimensional community empowerment in community-based ecotourism (CBET) using two contrasting conservation contexts in Ghana: the state-managed Ankasa Conservation Area (ACA) and the locally managed Amansuri Community Nature Reserve (ACNR). The findings revealed three main patterns. To begin with, empowerment outcomes varied spatially across communities. Secondly, communities located closer to ecotourism ventures generally recorded higher empowerment scores, although the statistical relationships between distance and empowerment were not significant. Finally, governance arrangements appeared to moderate these spatial patterns, as the proximate community within the locally managed ACNR (Nzulezu) consistently outperformed the proximate community within the state-managed ACA (Ankasa) across most empowerment dimensions.

Although the regression models did not provide statistically significant evidence of a direct distance effect, the convergence of the spatial maps, residual analysis, and qualitative findings suggested that geographic distance may still shape empowerment through contextual mechanisms. The consistently negative

regression slopes indicate that communities located farther from tourism facilities tended to report lower empowerment scores, particularly for political and social empowerment. These observed patterns align with the broader distance-decay literature, which argues that interactions, participation, and access to opportunities generally weaken with increasing spatial separation [20,60].

Similar tendencies have been reported in conservation contexts where communities located nearer protected areas perceive greater benefits and express stronger support for conservation than more distant communities [23,24]. However, because the present analysis was based on only four community observations, these findings should be interpreted as suggestive rather than conclusive evidence of a distance–empowerment relationship. A more important contribution of the study is the observation that proximity alone did not guarantee empowerment.

Ankasa, despite being geographically close to the conservation area, recorded relatively low economic, political, and social empowerment. In contrast, Amokwaw, a more distant community, performed better than expected in several dimensions. This finding suggests that spatial accessibility interacts with institutional conditions rather than operating independently. The qualitative evidence points to limited participation in tourism governance, weak benefit-sharing arrangements, and inactive Community Resource Management Areas (CREMAs) around ACA as factors that may have constrained empowerment despite favourable location. This interpretation is consistent with scholarship showing that community participation and institutional inclusion are central determinants of empowerment within tourism destinations [1,6,32]

The comparison between ACA and ACNR further highlights the role of governance. Nzulezu, which is both proximate to the tourism venture and embedded within a locally managed reserve, recorded the highest overall empowerment score and the strongest political and social outcomes. Residents also reported relatively greater engagement with tourism management than those around ACA, even though participation remained imperfect. These findings suggest that decentralized governance may create conditions that facilitate local visibility, participation, and perceived ownership of tourism initiatives. At the same time, the study does not imply that local governance automatically produces equitable outcomes. Respondents around ACNR also described consultation as irregular and largely instrumental [4,5,8,9,12,61]. The findings therefore support a more nuanced interpretation in which governance quality influences how spatial opportunities are translated into empowerment outcomes rather than simply categorizing local governance as inherently empowering.

The multi-dimensional analysis provides additional insight. Economic empowerment was the weakest dimension across all communities, indicating that ecotourism has not yet generated substantial livelihood transformation. This finding echoes broader CBET research showing that tourism revenues often remain concentrated among governments, elites, or external actors while local residents receive limited direct benefits [5,8]. The interview

data reinforce this interpretation: residents around ACA reported that tourism revenues accrue to the Forestry Commission with no formal mechanism for community sharing [7,9,12,30]. Such arrangements may weaken local incentives to support conservation because communities experience restrictions associated with protected areas without receiving visible economic returns.

Political empowerment exhibited the clearest spatial gradient. Nzulezu recorded substantially higher political empowerment than the ACA communities, while residents around ACA consistently reported minimal involvement in tourism decision-making. This finding is important because political empowerment is often regarded as the foundation for other forms of empowerment. Without opportunities to participate in planning, influence decisions, and access information, communities may struggle to secure economic benefits or shape tourism development in ways that reflect local priorities. The results therefore support arguments that empowerment is fundamentally linked to voice, representation, and institutional access rather than income alone [1,4,12].

In contrast, psychological empowerment showed little apparent relationship with distance. All communities reported relatively high levels of pride, recognition, and attachment to their tourism landscapes. This suggests that emotional and identity-based benefits may diffuse across wider geographic areas than material benefits. Residents may value the ecological and cultural significance of nearby conservation areas even when direct economic gains are limited. Similar observations have been made in studies of heritage and conservation tourism where attachment and cultural identity shape residents' attitudes independently of physical proximity [4,12,25,27].

The residual analysis strengthens the argument that empowerment cannot be explained by distance alone. Nzulezu and Amokwaw performed above the levels predicted by the distance-based model, whereas Ankasa and Ebonloa performed below expectations. These deviations point to the importance of local context, including institutional engagement, infrastructure, social networks, and tourism linkages. In particular, Ankasa illustrates that a community can be geographically central yet institutionally peripheral. This finding resonates with theories of peripheralization, which conceptualized marginality as a relational condition produced through unequal access to resources, decision-making processes, and development opportunities rather than through physical remoteness alone [15,16].

The study therefore makes a theoretical contribution by bringing together Scheyvens' empowerment framework and spatial theories of marginality and peripheralization. Existing empowerment studies have largely treated empowerment as a social or institutional process, while spatial scholarship has often focused on accessibility and uneven development. By integrating these perspectives, the study demonstrates that empowerment is also spatially differentiated. Communities located at similar distances from tourism resources may experience very different outcomes depending on governance quality, participation, and infrastructure.

This suggests that future applications of Scheyvens' framework should treat geographic accessibility not merely as a background context but as a factor that interacts with institutional arrangements to shape empowerment.

From a practical perspective, the findings indicated that policies aimed at strengthening CBET should focus not only on attracting visitors but also on improving local participation, benefit-sharing, and infrastructure. Revitalizing CREMAs around ACA, establishing transparent revenue-sharing mechanisms, and investing in roads and telecommunications network would likely improve both tourism performance and community welfare [1,4,12]. The study also demonstrates the value of spatially informed planning. Empowerment mapping can help identify communities that are underperforming relative to their geographic potential, enabling managers to target interventions more effectively [20,22,37].

Several limitations should be acknowledged. The regression analysis was based on a small number of spatial observations, limiting statistical power and preventing strong inference about distance effects. Cross-sectional design captures perceptions at one point in time and cannot assess how empowerment changes as tourism evolves. In addition, empowerment is influenced by many factors beyond distance, including income, education, leadership, and tourism dependency, which were not explicitly incorporated into the regression models. Future research should therefore examine larger numbers of communities across multiple protected areas, employ longitudinal designs, and integrate additional socio-economic and institutional variables into spatial analyses.

In conclusion, this study reveals that community empowerment in ecotourism is not solely a function of geographic proximity or governance in isolation. Rather, empowerment appears to emerge through the interaction between spatial accessibility and institutional arrangements, producing uneven outcomes across neighbouring communities. While the evidence for a direct distance effect remains suggestive, the combined spatial and qualitative findings indicated that communities located near tourism resources are not automatically empowered, and distant communities are not inevitably excluded. Recognizing these spatial and institutional dynamics is essential for designing ecotourism initiatives that are both environmentally sustainable and socially inclusive.

References

1. Scheyvens, R. (1999). Ecotourism and the empowerment of local communities. *Tourism management*, 20(2), 245-249.
2. Asiedu, A. B. (2002). Making ecotourism more supportive of rural development in Ghana. *West African Journal of Applied Ecology*, 3, 1-16.
3. Giampiccoli, A., & Saayman, M. (2018). Community-based tourism development model and community participation. *African Journal of Hospitality, Tourism and Leisure*, 7(4), 1-27.
4. Scheyvens, R., & van der Watt, H. (2021). Tourism, empowerment and sustainable development: A new framework for analysis. *Sustainability*, 13(22), 12606.

5. Blackstock, K. (2005). A critical look at community-based tourism. *Community development journal*, 40(1), 39-49.
6. Tosun, C. (2006). Expected nature of community participation in tourism development. *Tourism management*, 27(3), 493-504.
7. Eshun, G. (2014). Towards the dual mandate of ecotourism in Africa-comparative evidence from Ghana. *Africa insight*, 44(3), 164-184.
8. Mowforth, M., & Munt, I. (2015). *Tourism and sustainability: Development, globalisation and new tourism in the third world*. routledge.
9. Bempah, G., Darkwa, K. B., Monney, K. A., & Hassan, M. M. (2019). Evaluation of the community resources management area (CREMA) programme around Ankasa conservation area, Ghana. *Cogent Environmental Science*, 5(1)
10. Ahmed, A., & Gasparatos, A. (2020). Reconfiguration of land politics in community resource management areas in Ghana: Insights from the Avu Lagoon CREMA. *Land use policy*, 97, 104786.
11. Ansah, I. K. (2018). Residents' perception of tourism impact in Ankasa Conservation Area (Doctoral dissertation, University of Cape Coast).
12. Mawutor, S. M., & Hajjar, R. (2024). Empowerment and disempowerment in community-based natural resource management: Examining CREMA outcomes in Ghana. *Land use policy*, 138, 107051.
13. Mehretu, A., Pigozzi, B. W., & Sommers, L. M. (2000). Concepts in social and spatial marginality. *Geografiska Annaler: Series B, Human Geography*, 82(2), 89-101.
14. Leimgruber W., 2004. Between global and local: Marginality and marginal regions in the context of globalization and deregulation. Ashgate, Alder shot.
15. Kühn, M. (2015). Peripheralization: Theoretical concepts explaining socio-spatial inequalities. *European Planning Studies*, 23(2), 367-378.
16. Málíková, L., Farrell, M., & McDonagh, J. (2016). Perception of marginality and peripherality in an Irish rural context. *Quaestiones geographicae*, 35(4), 93-105.
17. Péntzes, J., & Demeter, G. (2021). Peripheral areas and their distinctive characteristics: The case of Hungary. *Moravian Geographical Reports*, 29(3), 217-230.
18. Gómez, J. M. N., Vulevic, A., Couto, G., & Alexandre Castanho, R. (2021). Accessibility in European peripheral territories: analyzing the Portuguese mainland connectivity patterns from 1985 to 2020. *Infrastructures*, 6(6), 92.
19. Harilal, Vyasha/Tichaawa, Tembi M. (2018). Ecotourism and alternative livelihood strategies in Cameroon's protected areas. In: *EuroEconomica* 37 (2), S. 133 - 148.
20. Digun-Aweto, O., Fawole, O.P. & Saayman, M. (2019). The effect of distance on community participation in ecotourism and conservation at Okomu National Park Nigeria. *GeoJournal* 84, 1337–1351 (2019).
21. Akbar, I., Myrzaliyeva, Z. K., Tazhekova, A. Z., Saulembayev, A. T., & Kenzhebay, R. N. (2021). Evaluation of the community-based ecotourism development status in the Aksu-Jabagly nature reserve, Kazakhstan. *Geo Journal of Tourism and Geosites*, 35(2), 381-389.
22. Rachmawati, Eva; Fountain, Joanna; and Mackay, Michael (2021) "Factors Influencing Economic Empowerment in Tourism Development," *Economics and Finance in Indonesia*: Vol. 67: No. 2, Article 5.
23. Mbise, F. P., Ranke, P. S., & Røskaft, E. (2021). Community spatial distance and educational determinants of how local people appreciate conservation benefits around Tarangire and Saadani National Parks, Tanzania. *Global ecology and conservation*, 28, e01641.
24. Phye, S. S. S., Htay, T., Thant, Z. M., Kyaw, H. Y., San, K. N., Tun, Z. P. H., ... & Røskaft, E. (2023). Exploring Community Perceptions and Attitudes toward Protected Areas in Myanmar: The Role of Socio-Spatial Factors in Conservation Support. *Human Ecology*, 51(6), 1189-1203.
25. Lwoga, N. B. (2019). Moderating effect of heritage spatial proximity on the relationship between perceptual proximity and residents' attitudes towards tourism. *African Geographical Review*, 38(3), 268–282.
26. Dar, S. A., & Ahmed, N. (2023). Residents support towards cultural heritage tourism: the relevance of heritage proximity and tourism perceived impacts. *Revista de turism-studii si cercetari in turism*, (35).
27. Wei, Y., Liu, H., & Park, K. S. (2021). Examining the structural relationships among heritage proximity, perceived impacts, attitude and residents' support in intangible cultural heritage tourism. *Sustainability*, 13(15), 8358.
28. Jurowski, C., & Gursoy, D. (2004). Distance effects on RESIDENTS' ATTITUDES toward tourism. *Annals of tourism research*, 31(2), 296-312.
29. Rogerson, C. M. (2013). Tourism and local development in South Africa: Challenging local governments. *African Journal for Physical Health Education, Recreation and Dance*, 2013(sup2. 1), 9-23.
30. Eshun, G., & Tichaawa, T. M. (2020). Community participation, risk management and ecotourism sustainability issues in Ghana. *Geo Journal of Tourism and Geosites*, 28(1), 313-331.
31. Pramono, R., & Juliana, J. (2025). Beyond Tourism: Community Empowerment and Resilience in Rural Indonesia. *Tourism and Hospitality*, 6(4), 210.
32. Nunkoo, R., Smith, S. L. J., & Ramkissoon, H. (2013). Residents' attitudes to tourism: A longitudinal study of destination governance. *Journal of Sustainable Tourism*, 21(7), 1046–1067.
33. Cullen, B. T., & Pretes, M. (2000). The meaning of marginality: interpretations and perceptions in social science. *The social science journal*, 37(2), 215-229.
34. Johnston R.J., Gregory D., Pratt G., Watts M., Smith D.M. (eds), 2000. *The dictionary of human geography* (4th ed.). Blackwell Publishers, Oxford.
35. Phillips, M. (2025). Towards a relational understanding of peripheralization: an examination of English rural small towns. In *Research Companion to the Periphery and Peripheral Regions* (pp. 44-62). Edward Elgar Publishing.
36. Jones, G., Leimgruber, W., & Nel, E. (2007). Issues in

- geographical marginality. *General and Theoretical Aspects (Grahamstown: Rhodes University)*.
37. McKercher (2008) The Implicit Effect of Distance on Tourist Behavior: A Comparison of Short and Long-Haul Pleasure Tourists to Hong Kong, *Journal of Travel & Tourism Marketing*, 25:3-4, 367-381.
 38. Knight D W & S P Cottrell (2016). Evaluating tourism-linked empowerment in Cuzco Peru. *Annals of Tourism Research* 56, 32–47.
 39. Han, G., Wu, P., Huang, Y., & Yang, Z. (2014). Tourism development and the disempowerment of host residents: types and formative mechanisms. *Tourism Geographies*, 16(5), 717-740.
 40. Eldridge, D., & Jones, J. P. (1991). Warped space: A geography of distance decay. *Professional Geographer*, 43(4), 500–511.
 41. Belisle, F. J., & Hoy, D. R. (1980). The perceived impact of tourism by residents a case study in Santa Marta, Colombia. *Annals of tourism research*, 7(1), 83-101.
 42. Goodchild, M. F. (2004). The validity and usefulness of laws in geographic information science and geography. *Annals of the Association of American Geographers*, 94(2), 300-303.
 43. Zhu, A.X., Wilson, J., & Li, W. (2018). The geography of spatial similarity: A comparative analytic framework. *Annals of the American Association of Geographers*, 108(3), 761–778. Chapter 1: Introduction
 44. Powell, R. B., Green, T. F., Holladay, P. J., Krafte, K. E., Duda, M., Nguyen, M. T., Spencer, J. H., & Das, P. (2017). Examining community resilience to assist in sustainable tourism development planning in Dong Van Karst Plateau Geopark, Vietnam. *Tourism Planning & Development*.
 45. Nguyen, D. T. N., d’Hauteserre, A. M., & Serrao-Neumann, S. (2022). Intrinsic barriers to and opportunities for community empowerment in community-based tourism development in Thai Nguyen province, Vietnam. *Journal of Sustainable Tourism*, 30(4), 723–741.
 46. Mendoza Ramos, Adrian & Prideaux, Bruce. (2013). Indigenous ecotourism in the Mayan rainforest of Palenque: empowerment issues in sustainable development. *Journal of Sustainable Tourism*. 22. 461-479.
 47. Siakwah, P. (2018). Tourism geographies and spatial distribution of tourist sites in Ghana. *African Journal of Hospitality, Tourism and Leisure*, 7(1), 1-19.
 48. DeGraft-Johnson, K. A. A., Blay, J., Nunoo, F. K. E., & Amankwah, C. C. (2010). Biodiversity threats assessment of the Western Region of Ghana. *The Integrated Coastal and Fisheries Governance (ICFG) Initiative*, Ghana.
 49. Mensah, C., Acheampong, O. A., & Antwi, K. B. (2013). Residents’ Perception of Impacts of Amansuri Conservation and Integrated Development Project (ACID) in Jomoro District, Western Region, Ghana. *Journal of Sustainable Development*, 6(5).
 50. Anderson, A. N. (2015). Characteristics And Motivations of Domestic Tourists to Nzulezo, Ghana
 51. Owusu, G., Anning, A. K., Belford, E. J., & Acquah, E. (2022). Plant species diversity, abundance and conservation status of the Ankasa Resource Reserve, Ghana. *Trees, Forests and People*, 8, 100264.
 52. Asare RA, Kyei A, Mason JJ. (2013) The community resource management area mechanism: a strategy to manage African forest resources for REDDp. *Phil Trans R Soc B* 368: 20120311.
 53. Akbarian Ronizi, S. R., Mokarram, M., & Negahban, S. (2020). Utilizing multi-criteria decision to determine the best location for the ecotourism in the east and central of Fars province, Iran. *Land Use Policy*, 99, 105095.
 54. Pourtaheri, M., Torabi, Z.-A., Khavarian-Garmsir, A. R., Sajadi, S., & Hall, C. M. (2024). Ecotourism Dynamics: A Village-Level Analysis of Marketing and Policy Indicators in Iran’s Hawraman Region. *Sustainability*, 16(12), 5072.
 55. Creswell, J. W., & Plano Clark, V. L. (2023). Revisiting mixed methods research designs twenty years later. *Handbook of mixed methods research designs*, 1(1), 21-36.
 56. Dennis, M., Barlow, D., Cavan, G., Cook, P. A., Gilchrist, A., Handley, J., James, P., Thompson, J., Tzoulas, K., Wheeler, C. P., & Lindley, S. (2018). Mapping urban green infrastructure: A novel landscape-based approach to incorporating land use and land cover in the mapping of human-dominated systems. *Land*, 7(1), 17.
 57. Raha, S., Mondal, M., & Gayen, S. K. (2021). Ecotourism potential zone mapping by using analytic hierarchy process (AHP) and weighted linear algorithm: A study on West Bengal, India. *Journal of Geographical studies*, 5(2), 44-64.
 58. Hu, A., Yabuki, N., Fukuda, T., Kaga, H., Takeda, S., & Matsuo, K. (2023). Harnessing multiple data sources and emerging technologies for comprehensive urban green space evaluation. *Cities*, 143, 104562.
 59. Yasin, K. H., & Woldemariam, G. W. (2023). GIS-based ecotourism potentiality mapping in the East Hararge Zone, Ethiopia. *Heliyon*, 9(8).
 60. Miller, H. J. (2004). Tobler’s First Law and Spatial Analysis. *Annals of the Association of American Geographers*, 94(2), 284–289.
 61. Stone, L. S., & Stone, T. M. (2011). Community-based tourism enterprises: challenges and prospects for community participation; Khama Rhino Sanctuary Trust, Botswana. *Journal of Sustainable Tourism*, 19(1), 97-114.

Copyright: ©2026 George Tandoh, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.